User Manual

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TradeMiner Pro Theory

The TradeMiner Pro Software enables a trader to search for historical trends and patterns that meets a certain criteria, or level of success. The user focuses on the month/symbol they wish to see the trend for, how many years to include in the pattern, how often it should win, what the minimum average gain should be to consider it a successful trend, how far the market can retrace before considering it a losing trend and how long the trend should last.

The concept is that if we find patterns, cycles or trends that continually repeat themselves in our historical log, then it is likely that these same patterns, cycles and trends will repeat in the future.

When you dig for results, the software looks for month/symbol based trading patterns by calculating the following question for every trading day available in the year. "If I enter on the first trading day of the month and exit on the third to the last trading day, do I find a pattern that wins historically?" The entry and exit dates aren't constrained to be in the same month.

In order to answer these questions and to look for patterns based on the days since the first of the month or before the end of the month, the historical data is lined up so that the trading days for each month are always at the same offset from the beginning. Because a month will have more trading days some years and less in other years, we use a proprietary method of calculation to even up the data. It’s through this secret formula that we are able to obtain such a high degree of accuracy over time; beyond what anyone else has ever been able to achieve.

The software is divided into four steps: Search, Neural Network, Portfolio, and Accounting. The Settings tab allows you make changes to the commodities, currency pairs, and/or equities that will be included in the search tab. The Education tab launches a web browser to the electronic education center

Step 1: Search

Each time you use Trade Miner you will need to dig for some results based on your criteria. There are several parameters to change, each with a different effect on the results. The software will have some default settings on the first run. It will remember your settings automatically for subsequent runs.

User Inputs

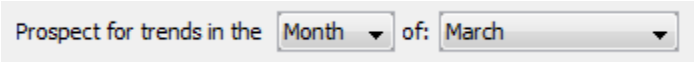
The user interface in the search tab reads like a sentence with select parameters you the user can change and adjust to find the trends that meet your criteria. Below is the user interface found in the Forex Version.

TradeMiner Pro
FOREX
Step 1: Search
Step 2: Neural Network
Step 3: Portfolio
Step 4: Accounting
Settings
Education
Step 1: Find & Select High Probability Trading Opportunities For Your Portfolio:
Prospect for trends in the Month of: November
Find trends that have won at least 75 % of the time, showing Both
List trends that last at least 10 trading day(s), but no more than 25 trading days. Mine at least 8 years of history.
Dig Now
Remove same symbol duplicate start dates.
Remove same symbol overlapping dates.
Trade View:
2014 DataCube
User Preferences
Column Options

Each of the user defined fields will be described below:

Month or Symbol

The First dropdown box will allow you to select either a search by month or a search by symbol.



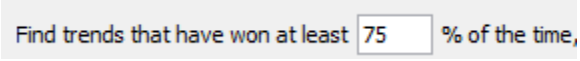
Choosing a month focuses the selection of historical trends on those that have trend start date within the selected month. If you choose November, then only trends that start in November will be selected. The trades may last past the end of November, depending on your maximum days setting.

Choosing a symbol will allow you to see the historical trends for the entire year of the selected commodity, currency pair, and/or equity. You can then sort the column by date to get a chronological timeline of the historical trends.

The second dropdown box will contain a list of months if month is selected in the first dropdown, and if symbol is selected then you can type or scroll to the available symbol you would like to search.

Won at least [Blank] %

The percent parameter allows you to ignore a set of historical trades unless they win (don't lose money) at least that percent of the time over the number of years examined.



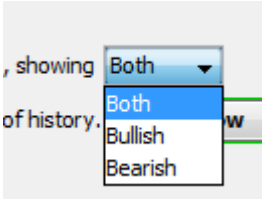
If you want to see a winner at least 80% of the time and you go back ten years, at least eight of those years will need to be winners. If you go back five years, at least four of them need to be winners.

The granularity of the percent parameter is fairly rough due to the amount of history available. Without going back 100 or more years, there is no difference between 79% and 80%. Both would require at least

eight wins on ten years of history. The lowest percentage you can search on is 75%, anything lower is not considered a strong seasonal trend and is ignored.

Trend Direction

TradeMiner can look for Bullish, Bearish, or Both Bullish and Bearish Trends.

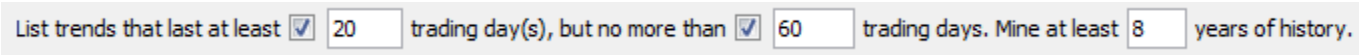


Bullish trends are trends that go up in price over the selected day range. Bearish trends are those that go down in price over the selected day range.

For Example some stock trading accounts require special permissions to trade short. So selecting only Bullish Trends will ensure that one would only see trends they are able to take.

Trading Period

The next criterion is how long a trade would have to last to be considered a trend.



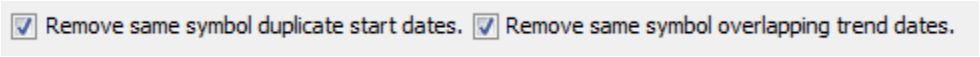
You may specify the minimum length of the trade in days. If you select trends that last at least 20 trading days, then TradeMiner will only show trends that last longer than 20 trading days.

If you would like to cap when a trend ends then the Maximum day parameter lets you type in any number of days as long as it exceeds your minimum trading day selected. If a trade lasts longer than your maximum trading days then it will not be shown.

The years parameter allows you to limit or expand the number of years considered when looking for a pattern. The minimum number of years to look back is 5 years. Longer term patterns may be considered to be more reliable than a short term one. On the other hand, markets can change over time and greater number of years may ignore a more recently developed trend. This is a minimum field, if you are looking back 8 years, you would see all trends that last 8 or more years.

Filtering Results

There are two filters which help to remove redundant trades.



When performing a search, there are symbols that will have the same start date but have a different end date. If you wish to see all the different trends and statistics related to each un-checking the filter and performing a dig will reveal all the trades that were filtered out.

Some Trends will begin the day after or occur while a longer term trend is happening. If this is the case then the filter to remove same symbols overlapping trend dates, will not show the trends that happen in the middle of a longer tend. Again removing this filter will show the trends that were removed.

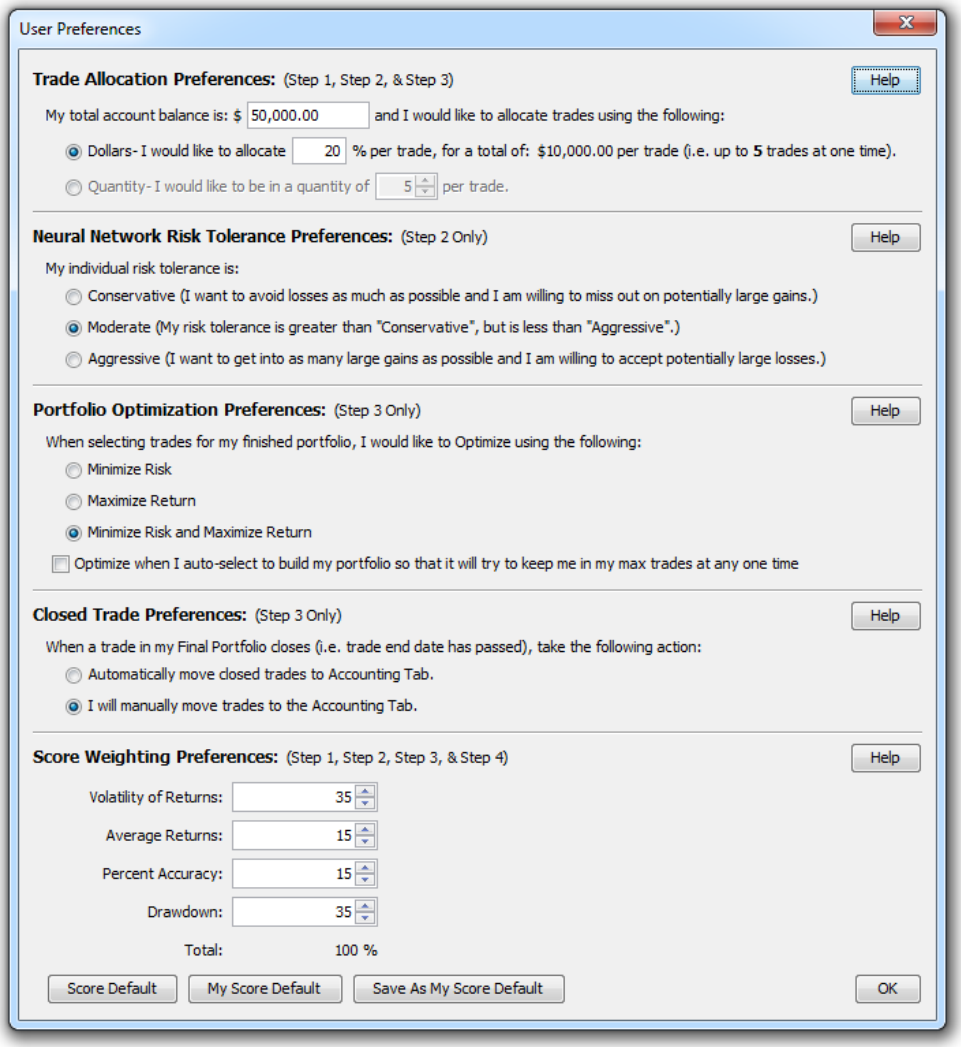
Dig Now

When all your parameters are set selecting the Dig Now button will initiate a search through the data cube and then will present all the trades that meet the criteria.

After a dig has been initiated a green progress bar will appear as the software advances through the DataCube. The Dig Now Button will also change to read Cancel which if selected will stop the search and display the results that it was able to find to the point of canceling.

User Preferences

The User preferences dialog box can be accessed by selecting the User Preferences button


User Preferences
Trade Allocation Preferences: (Step 1, Step 2, & Step 3)
Help
My total account balance is: $ 50,000.00 and I would like to allocate trades using the following:
Dollars- I would like to allocate 20 % per trade, for a total of: $10,000.00 per trade (i.e. up to 5 trades at one time).
Quantity- I would like to be in a quantity of 5 per trade.
Neural Network Risk Tolerance Preferences: (Step 2 Only)
Help
My individual risk tolerance is:
Conservative (I want to avoid losses as much as possible and I am willing to miss out on potentially large gains.)
Moderate (My risk tolerance is greater than "Conservative", but is less than "Aggressive".)
Aggressive (I want to get into as many large gains as possible and I am willing to accept potentially large losses.)
Portfolio Optimization Preferences: (Step 3 Only)
Help
When selecting trades for my finished portfolio, I would like to Optimize using the following:
Minimize Risk
Maximize Return
Minimize Risk and Maximize Return
Optimize when I auto-select to build my portfolio so that it will try to keep me in my max trades at any one time
Closed Trade Preferences: (Step 3 Only)
Help
When a trade in my Final Portfolio closes (i.e. trade end date has passed), take the following action:
Automatically move closed trades to Accounting Tab.
I will manually move trades to the Accounting Tab.
Score Weighting Preferences: (Step 1, Step 2, Step 3, & Step 4)
Help
Volatility of Returns: 35
Average Returns: 15
Percent Accuracy: 15
Drawdown: 35
Total: 100 %
Score Default
My Score Default
Save As My Score Default
OK

Trade Allocation Preferences allow you to set your account balance. You can then choose if you would like to allocate a specific percentage of your account balance to each trade (which will vary the quantity per trade) or you may choose to allocate a fixed quantity to each trade (note: choosing to allocate based on quantity will allow the per trade quantity to be the same on every trade every trade regardless of your account size).

The **Neural Network Risk Tolerance Preferences** Tab allows you to set your individual risk tolerance.

Conservative
The Conservative setting is for risk-adverse traders and this simply means that , when building the neural network classification model, this setting will tell the model to avoid as many unsuccessful trades as possible (this also means that some potentially large gains will likely be missed). When this setting is selected there will typically be fewer trades classified as successful and more trades classified as unsuccessful, because the neural network is putting most of its effort towards identifying the trades that look like they will be unsuccessful trades. Lastly, this setting is typically used by those who are relatively passive investors.

Moderate
The Moderate setting is for traders who are somewhat risk-adverse, but also do not want to miss out on too many large gains. This setting is in between Conservative and Aggressive, which means that the classification model will give an equal amount of effort to trying to identify successful trades as it does trying to identify unsuccessful trades. In other words, instead of focusing on one type of trade over the other, both types of trades will be treated equally, which means that there should be, on average, a more equal number of both types of trades (successful vs. unsuccessful) included in the output of the neural network model. Lastly, this setting is typically used by those who aren't completely active traders but also aren't completely passive investors.

Aggressive
The Aggressive setting is for traders who have very little risk aversion and this simply means that, when building the neural network classification model, this setting will tell the model to focus on identifying as many successful trades as possible (this also means that some potentially large losses will be included as well). When this setting is selected there will typically be more trades classified as successful and fewer trades classified as unsuccessful, because the neural network Is putting most of its effort towards identifying the trades that look like they will be losing trades. Lastly, this setting is typically used by those who are relatively active traders

The **Portfolio Optimization Preferences** section will allow you to set your preference of how you would like the auto-selection algorithm to help choose an optimal portfolio for you based on your risk profile:

Minimize Risk
The Minimize Risk setting attempts to choose trades for your portfolio that are not as volatile and work well with other uncorrelated similar trades.

Maximize Return

The Maximize Return setting attempts to choose trades for your portfolio that maximize return, which can mean bigger potential gains as well as bigger potential losses due to historically higher volatility and attempts to group them with other uncorrelated similar trades.

Minimize Risk and Maximize Return
The Minimize Risk and Maximize Return setting attempts to choose trades that are a happy medium of both minimizing risk and maximizing return and attempts to assemble a portfolio meeting these criteria with as low of correlation as possible.

The last optional checkbox in this preference is whether you want the auto-selection algorithm to choose the max number of trades for you to be in consistently based on the choices it has to choose from in your pick list. So for example if your max number of trades is 5 and 1 of those trades ends before the other trades end then the algorithm will attempt to add in another trade so you are always in 5 trades as often as possible. By not having this box checked it will simply choose 5 trades total from the pick list for you to be in.

The **Closed Trades Preferences Help** section allows you to choose to have your closed trades (where the End Date has passed) automatically moved to step 4 to the closed trades accounting tab or whether you would like to manually move them. If you choose to have them automatically moved, you have to keep this in mind when back testing on past months because when you attempt to move trades from your pick list to your portfolio they will recognize that the end date has past and move automatically over to your closed trades in step 4. So for back testing you would want this in manual mode and for forward trading and analyzing you may choose either mode.

The Score Weight Preferences system uses many different factors to score each individual trade. Volatility of Returns, Average Returns, Percent Accuracy, and Drawdown are the four factors that can be adjusted by the user (the other factors are proprietary and cannot be adjusted0 and adjusting their percentages will adjust the impact that each respective factor has on the score of the trade. Volatility of Returns and Drawdown are negative factors and increasing their percentages will increase the score of trades that are less volatile and have smaller drawdowns and will decrease the score of trades that are more volatile and have larger drawdowns. Average Returns and Percent Accuracy are positive factors and increasing the percentages will increase the score of trades that have high percentage returns and high percentage accuracy and will decrease the score of trades that have low percentage returns and low percentage accuracy.

Metric	Metric Summary	Increasing/Decreasing Weight
Volatility of Returns	Measures the relative amount of year-over-year return volatility of each TradeMiner trade.	Increases(decreases) the relative score of trades that exhibit lower(higher) return volatility.
Average Returns	Scores each TradeMiner trade based on its average return, with a focus on how quick each trade return is generated.	Increases(decreases) the relative score of trades that have higher(lower) average returns.
Percent Accuracy	Scores each TradeMiner trade based on its overall win percent.	Increases(decreases) the relative score trades that have higher(lower) win percentages.
DrawDown	Measured the relative amount of risk due to the maximum trade drawdown and average trade drawdown, of each TradeMiner trade.	Increases(decreases) the relative score of trades that exhibits lower(higher) drawdown-related risk.

Note: The impact to the score that occurs when the percentage for each factor is adjusted will be different for different trades. The impact to the score of trades with higher scores will be less noticeable when compared to the impact to the score of trades with lower scores, and the reason that this will typically be the case is because the un-adjustable, proprietary factors have a greater impact on trades with higher scores.

All of these descriptions can be accessed in the software by selecting the Help button.

Results Window

Once you have a list of trends that meet your search criteria, you can drill down on the specifics of individual trade opportunities. You are able to sort by any of the columns in the table to group your preferred trades together.

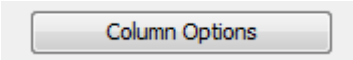
Columns

- Add - Checked trades are in your Neural Network tab. Toggling the check box in this column adds or removes them from the Watch List. Double-clicking the row adds that trade to your Neural Network if it was not already selected and switches to the Neural Network tab.
- Score - A software ranking system on a scale of 5-0, with 5 being the high. Score takes into account volatility of returns, average returns, percent accuracy, and drawdown. This score is the software's way of filtering through the results and providing trends that are stronger as a higher score.
- Trend - The direction of the entry trade, bullish (buying) bearish (selling)
- Symbol - The symbol to buy or sell
- Instrument – Name of the Commodity, Currency Pair, or Equity.
- Begin (Open) - The date the trend generally begins, projected into this year's calendar.
- End (Close) - The date the trend tends to end.
- Win % - Percentage of years that were winners.
- Years – Number of years in the pattern.
- Cal Days – Number of calendar days in the trade.
- Avg Profit (% or %ROM) – The average closed profit and loss for this trade historically displayed as a percentage rate.

- Avg Profit ($)- The average closed profit and loss for this trade historically displayed in dollars.
- Avg Profit (Tics, Pips) – [Futures and Forex only] – The average profit displayed in tics or pips
- Risk:Reward – Historical Risk vs Reward for the number of years the trend has existed.
- Avg Daily Profit (% or %ROM) - Average daily profit displayed as a percentage rate.
- Max Gain (Pips or Tics) – [Futures and Forex only] – The biggest historical single-year closed profit for the number of years the trend has existed.
- Tic Value/Pip Value – [Futures and Forex only] – The value of the tic or pip price.
- Quantity – How many contracts, shares, or pairs purchased. This amount is set in the user preferences.
- Margin/Contract – [Futures and Forex only] – The price of the margin or contract price.
- Avg Daily Profit (Tics or Pips) – [Futures and Forex only] – Average daily profit displayed in tics or pips.
- Avg Daily Profit ($) – Average daily profit displayed in dollars.
- Biggest Profit (Tics or Pips) – [Futures and Forex only] – The biggest historical single-year closed profit and loss for this trade displayed in tics or pips.
- Biggest Profit (% or %ROM) - The biggest historical single-year closed profit and loss for this trade displayed as a percentage.
- Biggest Profit ($) - The biggest historical single-year closed profit and loss for this trade.
- Max Draw (Tics or Pips) – [Futures and Forex only] - The most the market moved against the trade historically displayed in tics or pips
- Max Draw (% or %ROM) - The most the market moved against the trade historically displayed as a percentage rate.
- Max Daw ($) - The most the market moved against the trade historically in dollars
- Avg Draw (Tics or Pips) – [Futures and Forex only] - The average draw down for this trade historically displayed in tics or pips.
- Avg Draw (% or %ROM) - The average draw down for this trade historically displayed as a percentage rate.
- Avg Draw ($) - The average draw down for this trade historically in dollars.
- Total Wins - Total count of winning years.
- Total Losses - Total count of loosing years.
- Max Gain (% or %ROM) - The biggest historical single-year closed profit for the number of years the trend has existed displayed as a percentage rate
- Max Gain ($) - The biggest historical single-year closed profit for the number of years the trend has existed displayed in dollars
- Trading Days - Number of trading days in the trade.
- Total Historical Profit (% or %ROM)
- Total Historical Profit ($) - Sum of the profit (or loss) from all the years in the pattern.
- Amount/Trade – The dollar amount traded for the displayed results.
- Optionable - [Stocks and Futures only] – signifies if the commodity or equity Is available for option trading.
- Group – [Futures only] – Classification of a Commodity, i.e. Grains, Metals, Energies, etc…

- Previous Close - [Stocks only] – will display the last close price of the equity at the time of last internet connection. Internet is required to update the close prices.
- Sector - [Stocks only] - Classification of equities, i.e. Healthcare, Financial, Technology, etc...
- Industry - [Stocks only] – Deeper Classification of equities

You may drag any column to a different location in the results window. You can also select the Colum Options Button and add, remove, or position any of the columns as you prefer.



Column Formulas

Average Profit:
Total profit / years

Total Historical Profit:
Sum(profit(top year):profit(top year - years))

Max Draw:
If buying, the difference between the entry price and the lowest low during the trade. If selling, the difference between the entry price and the highest high during the trade.

Avg Draw:
Total draw / years

Avg Daily Profit Percent:
Daily percent profit = percent profit / calendar days in trade
Total daily percent profit = sum of daily percent profit for all years in the trade
Average daily percent profit = total daily percent profit / years

Avg Daily Profit Dollars:
Daily profit = profit / calendar days in trade
Total daily profit = sum of daily profit for all years in the trade
Average daily profit = total daily profit / years

Risk Reward Ratio:
Risk reward ratio = average profit / average draw

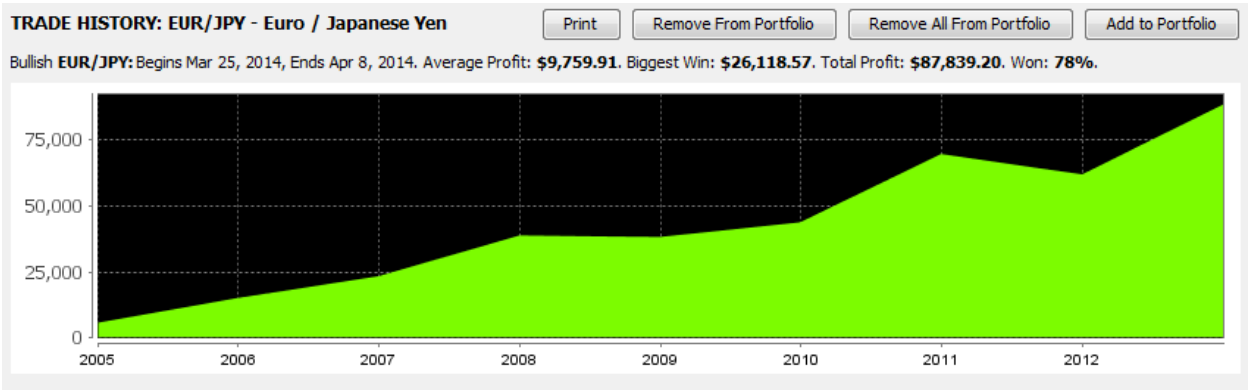
Score:
Proprietary formula that determines which opportunities make the most amount of money, in the shortest amount of time, with the least amount of risk.

Charts

TradeMiner provides several charts to help display the information in the results window. On the right hand side of the software are 4 clickable windows. When a chart is clicked a larger table/chart will be shown beneath the Results Window.

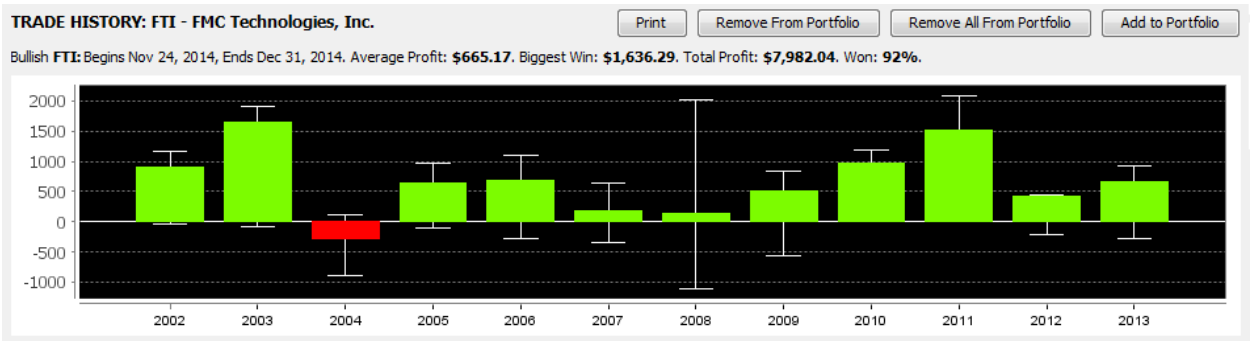
Historic Histogram

The historical Histogram is a look back in time. This is what your portfolio would have looked like if every year over the course of the trend you had entered at the open of the trend and exited at the close of the trend.



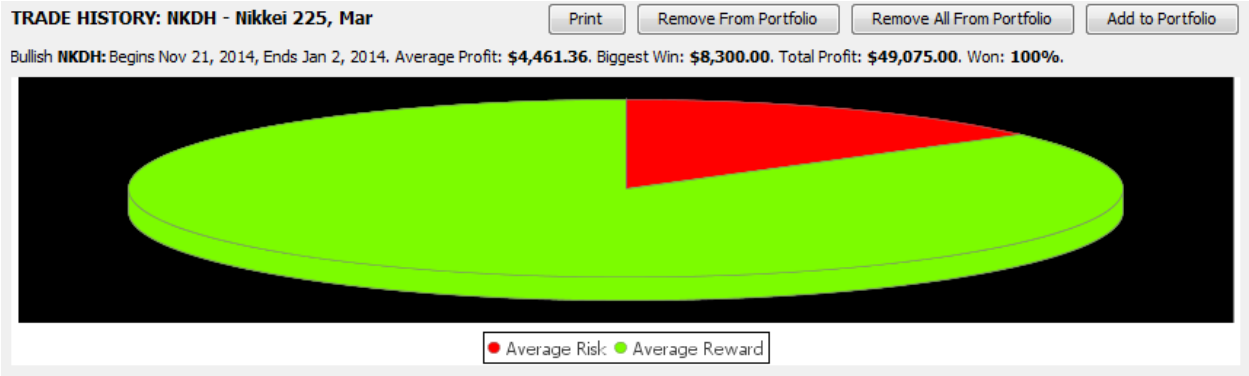
Year-by-Year look back

The Year-by-Year looks back is a graph that allows you to quickly see the winning and losing years, also you can identify the max draw downs and max the market hit during the trend dates. Winning trades show as a green bar, losing trades as a red bar. The White lines signify how high and low the investment went up and or down during the trend period.



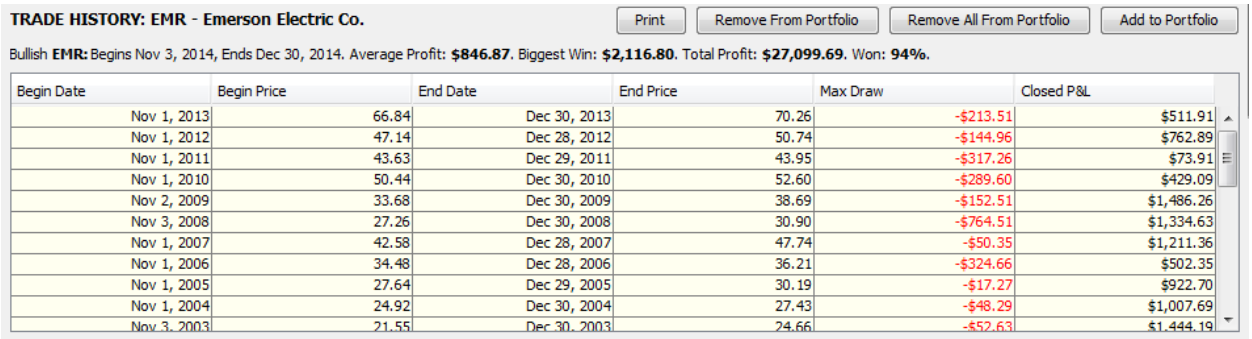
Historical Average Risk vs. Reward

The Historical Average Risk vs. Reward chart visually shows in a pie chart the amount of risk vs reward.


TRADE HISTORY: NKDH - Nikkei 225, Mar
Print
Remove From Portfolio
Remove All From Portfolio
Add to Portfolio
Bullish NKDH: Begins Nov 21, 2014, Ends Jan 2, 2014. Average Profit: $4,461.36. Biggest Win: $8,300.00. Total Profit: $49,075.00. Won: 100%.
Average Risk
Average Reward

Year-by-Year Trade Table

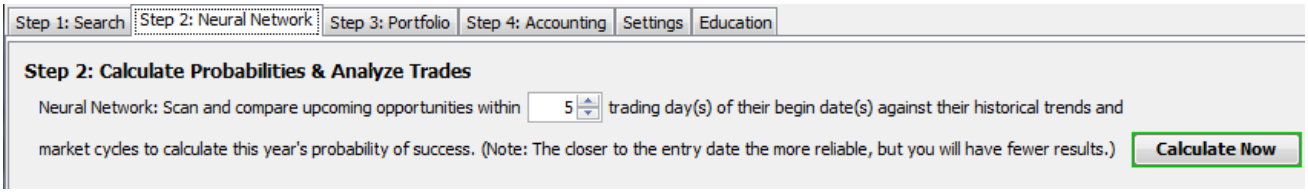
The Year-by-Year Trade Table shows a accounting of each year's trade during the trend period. The Date the trade Started and ended as well as the entry and exit price are shown. The Max Draw and the closed P&L is also calculated.


TRADE HISTORY: EMR - Emerson Electric Co.
Print
Remove From Portfolio
Remove All From Portfolio
Add to Portfolio
Bullish EMR: Begins Nov 3, 2014, Ends Dec 30, 2014. Average Profit: $846.87. Biggest Win: $2,116.80. Total Profit: $27,099.69. Won: 94%.

Begin Date	Begin Price	End Date	End Price	Max Draw	Closed P&L
Nov 1, 2013	66.84	Dec 30, 2013	70.26	-$213.51	$511.91
Nov 1, 2012	47.14	Dec 28, 2012	50.74	-$144.96	$762.89
Nov 1, 2011	43.63	Dec 29, 2011	43.95	-$317.26	$73.91
Nov 1, 2010	50.44	Dec 30, 2010	52.60	-$289.60	$429.09
Nov 2, 2009	33.68	Dec 30, 2009	38.69	-$152.51	$1,486.26
Nov 3, 2008	27.26	Dec 30, 2008	30.90	-$764.51	$1,334.63
Nov 1, 2007	42.58	Dec 28, 2007	47.74	-$50.35	$1,211.36
Nov 1, 2006	34.48	Dec 28, 2006	36.21	-$324.66	$502.35
Nov 1, 2005	27.64	Dec 29, 2005	30.19	-$17.27	$922.70
Nov 1, 2004	24.92	Dec 30, 2004	27.43	-$48.29	$1,007.69
Nov 3, 2003	21.55	Dec 30, 2003	24.66	-$52.63	$1,444.19

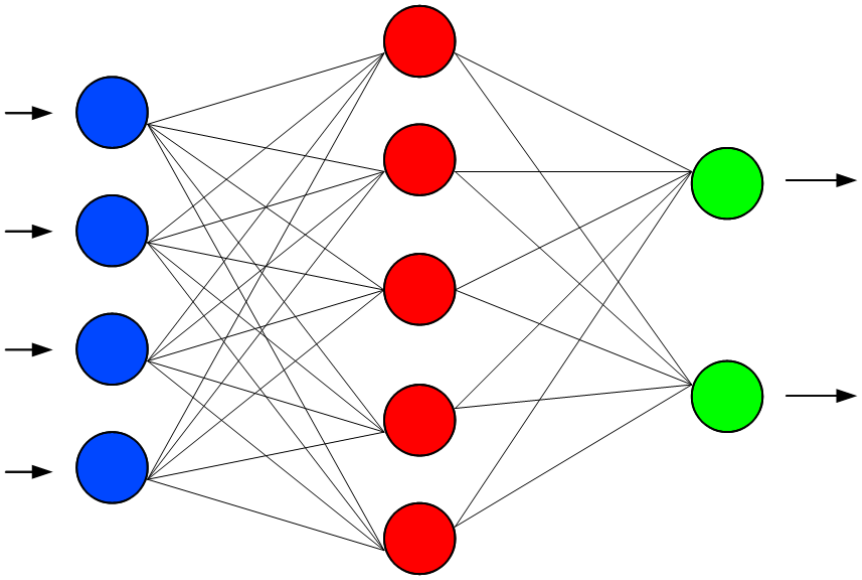
Step 2: Neural Network

You can add trades to the Neural Network tab in Step 1 by selecting the add column on the desired trend, or by double clicking the trend. Switching over to the Neural Network Tab you will see the User interface on this tab.


Step 1: Search
Step 2: Neural Network
Step 3: Portfolio
Step 4: Accounting
Settings
Education
Step 2: Calculate Probabilities & Analyze Trades
Neural Network: Scan and compare upcoming opportunities within
5
trading day(s) of their begin date(s) against their historical trends and
market cycles to calculate this year's probability of success. (Note: The closer to the entry date the more reliable, but you will have fewer results.)
Calculate Now

In Step 2 TradeMiner will calculate a High, Medium, Low, and Very Low probability that the trade will act as it has in the past. In other words the software runs the selected trades through a neural network and attempts to identify if the historical trend will repeat this upcoming year. Because the neural network looks at current market data you must have an internet connection to receive a probability.

Neural Network Prediction Model



Brief Overview of Neural Networks

A biological neural network is simply a series of interconnected neurons that interact with each other in order to transmit signals and process information. In other words, biological neural networks give humans the ability to learn complex patterns. Similarly, an artificial neural network (which is what we used for our prediction model) is a mathematical model that was inspired by biological neural networks, and can be used for pattern recognition purposes. We are simply going to call them neural networks.

Overview of the Trade Classification Model

The TradeMiner **Probability** column, which is located in **Step 2: Neural Network**, uses a neural network pattern recognition model to classify each TradeMiner trade that has been added to Step 2 as either a "successful" trade or an "unsuccessful" trade (a successful trade is simply a trade that has positive

returns and, inversely, an unsuccessful trade is simply a trade that has negative returns). In order to do this, the neural network model uses various technical indicators, which are calculated using the price action that occurs prior to each trade entry date, to determine what a trade "looks like" (i.e., whether it looks like it will be a successful trade or whether it looks like it will be an unsuccessful trade) by comparing the current-year indicator values to the same values for historical trades.

Once a trade is classified as either successful trade or an unsuccessful trade (this is the current-year directional bias of the trade), then each trade is further classified as either High, Medium, Low or Very Low, where High/Medium classifications are given to trades that look like they will be successful and Low/Very Low trades classifications are given to trades that look like they will be unsuccessful. In addition to the directional bias, there is another important characteristic that distinguishes High from Medium and Low from Very Low, which is whether or not a trade looks like it will be an average trade. For example, if a trade looks like it will have a greater-than-average gain then that trade will be classified as High, but if the trade looks like it will have an average gain then that trade will be classified as Medium. Similarly, if a trade looks like it will have a greater-than-average loss then that trade will be classified as Very Low, but if the trade looks like it will have an average loss then that trade will be classified as Low.

Using the Neural Network Classification Model

The first thing that needs to be done, prior to using the classification model, is to make sure that you have specified your individual risk tolerance preferences, where you will be able to select from conservative, moderate, or aggressive. This preference can be set by selecting the **User Preferences** button that is located in the top-right corner of Step 1 through Step 4.

Another important thing to remember is that since the neural network classification model uses current-year daily prices, trade classifications can only be made up to 15 trading days before the actual trade entry date; however, as would be expected, the closer to the trade entry date that a trade classification is made, the more accurate the classification will likely be (e.g., using the neural network to classify a trade the day before the trade entry date means that the model will be using relatively more accurate price data, when compared to a classification that is made 15 trading days before the trade entry date). Additionally, the classification for each individual trade can only be made one time each day (which makes sense because the neural network uses daily price data) and, as new price data is included in the classification model, trade classifications will sometimes change so it is a good idea to re-calculate the neural network model one last time prior to placing any trades.

If you would like to only calculate classifications for trades that are within a specified number of trading days before the trade start date, you can adjust the number of trading days before the trade start date that classifications will be allowed. However, it is important to remember that the greater the number of classifications models that need to be built, the longer it will take to calculate the neural network results, so the computation time can be reduced by only classifying trades that are within a smaller number of trading days. The setting for the total number of trading days prior to the trade start date, which controls how soon classifications can be made, can be adjusted prior to pressing the Calculate Now button to classify each of the trades.

After running the neural network model, trades that are not yet close enough to the trade start date will not receive a trade classification. Instead, the TradeMiner Probability column will tell you the number of days until a classification can be calculated. If the trade is close enough to the trade start date so that a classification can be calculated, the trade classification will show up in the Probability column after the trade has been classified.

Classification Model Trade "Types"

The two "types" of trades that the TradeMiner neural network classification model recognizes includes both trend following trades and mean reversion trades. Trend following trades (see figure 1) occur when an asset tends to move in one particular direction for an extended period of time and, after which, the asset reverses its current trend and starts trending in the opposite direction.

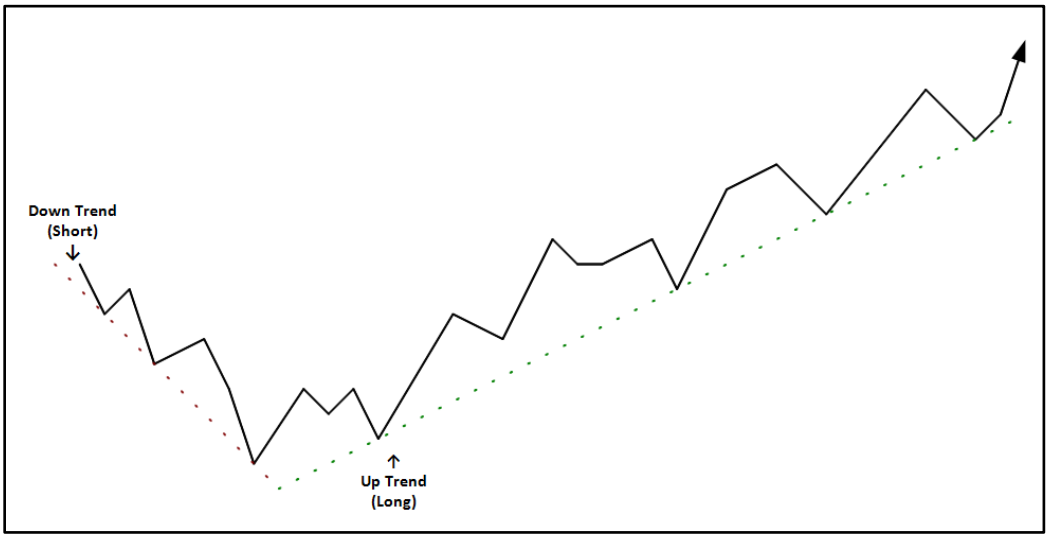


Figure 1: Trend Following Trade

Mean reversion trades (see figure 2) occur when an asset tends to revert back to its mean value (i.e., average value) over time, after having been "over-bought" or "over-sold" for a period of time. In other words, the asset has an "equilibrium" price (or "equilibrium" average rate of return) that it tends to revert back to whenever it has moved too far in one direction.

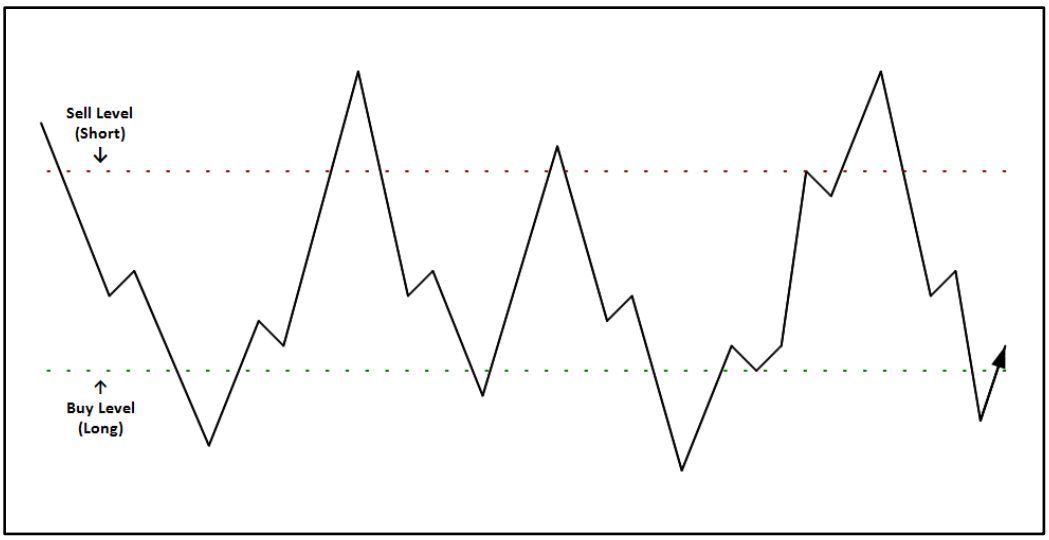


Figure 2: Mean Reversion Trade

Trade Classification Characteristics

As mentioned previously, the TradeMiner neural network classification model uses pattern recognition to identify what successful and unsuccessful trades "look like" (which can be both trend following trades and mean reverting trades). If a trade is identified as being a successful trade, the trade classification will either be a classification of High or a classification of Medium, and, similarly, if a trade is identified as being an unsuccessful trade, the trade classification will either be a classification of Low or a classification of Very Low. In order to help you visualize what I mean by what successful and unsuccessful trades "look like," I am going to provide a hypothetical example of a trend following trade that will give you an idea of what pattern that type of trade might follow, for each of the different trade classifications.

A trend following trade that "looks like" it will be successful will typically start building momentum after prices reverse course and start a new trend and, after the new trend has been established (see figure 3), the price action will need to further confirm the validity of the trend reversal (assuming that the trade is, indeed, a successful trade). For a trend following trade, all of this will typically occur prior to the trade entry date. The exit date of the TradeMiner trade will either be near the end of the entire trend or close to the end of one or more legs of the trend, which will obviously differ depending on many different variables such as the length of the trade. On the other hand, a trend following trade that "looks like" it will be unsuccessful, prior to the trade entry date, won't be able to completely reverse its prior trend, so prices will continue moving in the same direction after a brief price consolidation (see figure 4).

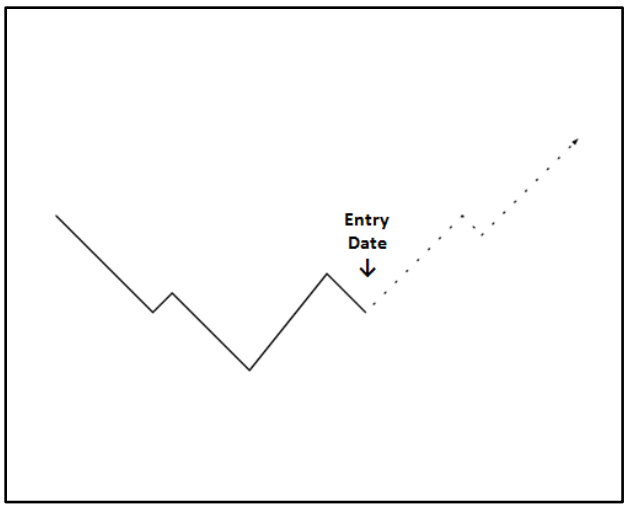


Figure 3: Characteristics of a Successful Trade

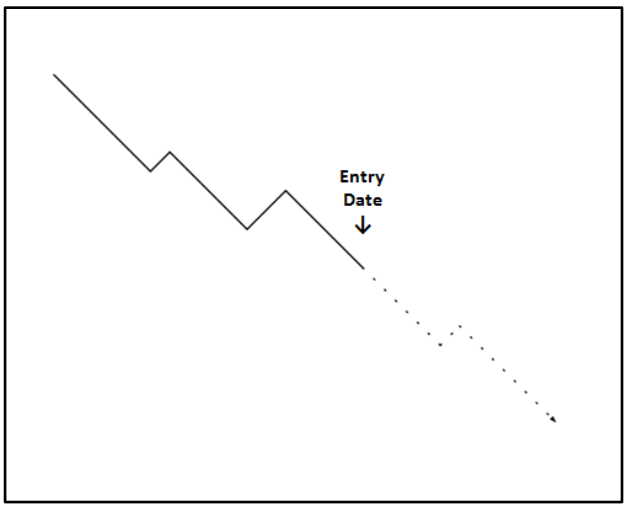


Figure 4: Characteristics of a Unsuccessful Trade

If the trade "looks like" it will be successful (as shown in figure 3 above), the neural network classification model will classify the trade as either High or Medium. If the trade classification is Medium, then the model has determined that the trade is currently exhibiting the characteristics of a successful trade that has an average positive return (an average trade is simply a trade where the trade metrics, such as return and volatility, have values that are similar to their respective historical values). This means that the model expects the trade to follow its typical price pattern and that it also expects the trade to be a successful trade, which is the directional bias of a Medium trade classification (see figure 5 for an example). If the trade is classified as High, then the trade is currently exhibiting the characteristics of a successful trade that has a greater-than-average positive return (a greater-than-average trade is simply a trade where the trade metrics, such as return and volatility, have values that are greater than their typical values). This means that the trade is expected to be more volatile than a typical trade and that it also expects the trade to be a successful trade, which is the directional bias of a High trade (see figure 6 for an example).

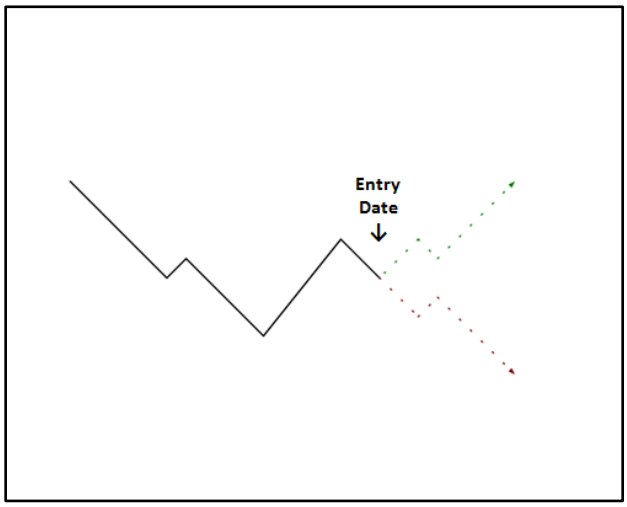


Figure 5: Characteristics of a Medium Trade

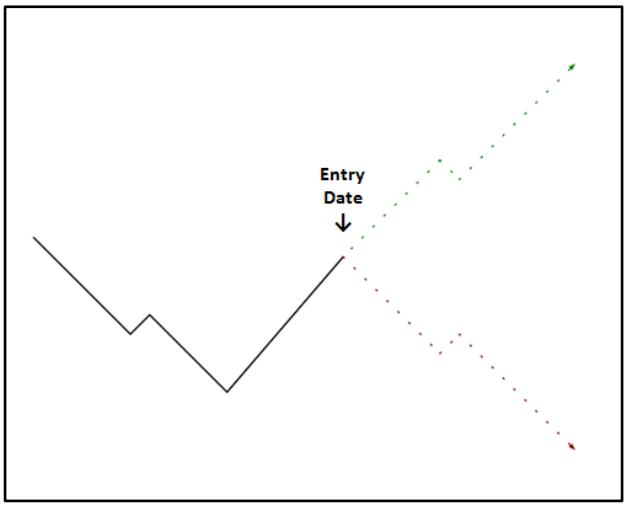


Figure 6: Characteristics of a High Trade

If the trade "looks like" it will be unsuccessful (as shown in figure 4 above), the neural network classification model will classify the trade as either Low or Very Low. If the trade classification is Low, then the model has determined that the trade is currently exhibiting the characteristics of an unsuccessful trade that has an average negative return. This means that the model expects the trade to follow its typical unsuccessful price pattern, which means the directional bias of the trade is negative (see figure 7 for an example). If the trade classification is Very Low, then the model has determined that the trade is currently exhibiting the characteristics of a greater-than average unsuccessful trade. This means that the model expects the trade to have a greater-than-average negative return, which means that the directional bias of the trade is negative and that the trade "looks like" it will be more volatile that the typical unsuccessful trade (see figure 8 for an example).

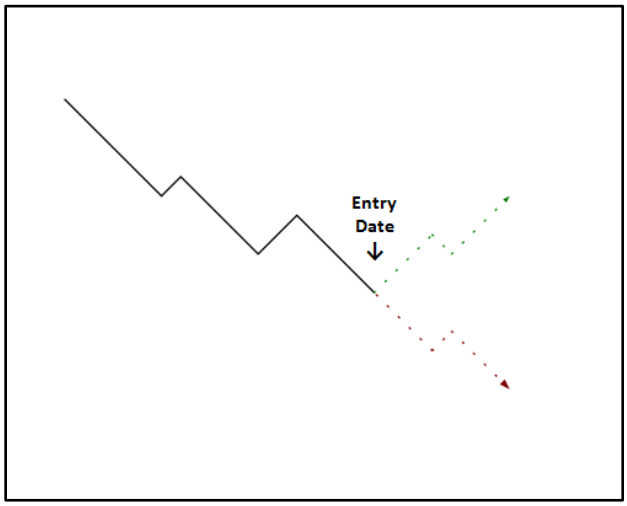


Figure 7: Characteristics of a Low Trade

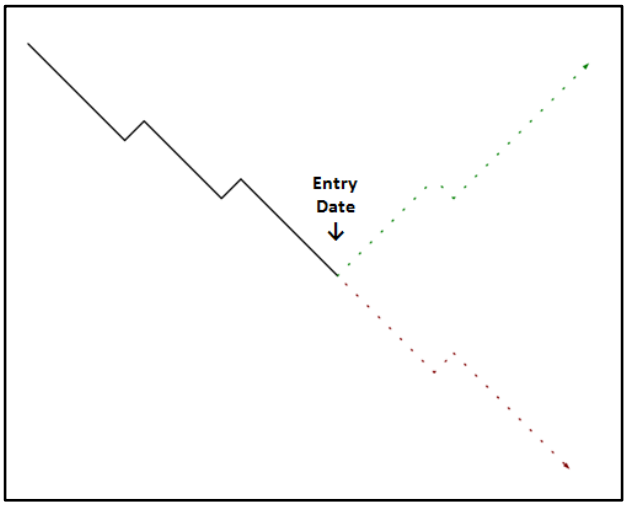


Figure 8: Characteristics of a Very Low Trade

The most important thing to remember about the neural network trade classification model is that it uses a pattern recognition model to identify what successful and unsuccessful trades "look like," where trades that are classified as High or Medium "look like" they will be successful trades and trades that are classified as Low or Very Low "look like" they will be unsuccessful trades. Additionally, the two extreme classifications (i.e., High and Very Low) tend to be more volatile trades, whereas the two middle classifications (i.e., Medium and Low) tend to be trades that are similar to the average historical trade. See table 1 for a summary of each of the trade classifications.

Table 1: Trade Classification Characteristics

Classification	Summary of Classification Characteristics
High	These trades are classified as *successful* trades (i.e., they have a positive return bias). These trades are typically more volatile than the average historical trade, especially when prices are either overbought (for *long* trades) or oversold (for *short* trades).

	These trades typically produce greater-than-average positive returns; however, if the current trend reverses course during the trade, then the trade could end up producing large losses as the asset price reverses and moves quickly in the other direction.
Medium	These trades are classified as *successful* trades (i.e., they have a positive return bias). These trades have characteristics that are similar to the average trade. These trades do not have any particular trade behavior to watch out for.
Low	These trades are classified as *unsuccessful* trades (i.e., they have a negative return bias). These trades have characteristics that are similar to the average trade. These trades do not have any particular trade behavior to watch out for.
Very Low	These trades are classified as *unsuccessful* trades (i.e., they have a negative return bias). These trades are typically more volatile than the average historical trade, especially when prices are either oversold (for *long* trades) or overbought (for *short* trades). These trades typically produce greater-than-average negative returns; however, if the current price trend reverses course during the trade, then the trade could end up producing large gains as the asset price reverses and moves quickly in the other direction.

Trade Strategies Based on Trade Classification

There are many different trading strategies that can be applied to the results of the neural network model output and the type of trade strategy chosen will likely depend on both your individual risk tolerance (i.e., conservative, moderate, or aggressive) and the type of investor that you are (i.e., active trader vs. passive investor).

To provide an example, a passive investor that is relatively conservative would want to set their risk tolerance setting to conservative (which tells the classification model to focus on avoiding unsuccessful trades and will typically produce fewer trades with High or Medium classifications) and then only enter into trades that are classified as either High or Medium. It would also be a good idea, when using this type of strategy, to select a greater number of trades in order to have a more diversified portfolio.

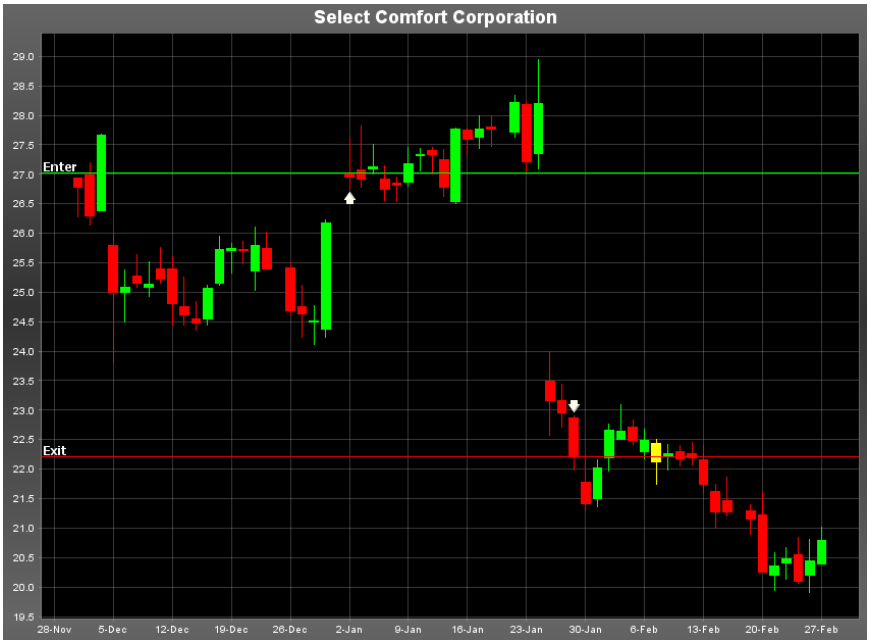
On the other hand, an active trader that is relatively aggressive would want to set their risk tolerance to aggressive (which tells the classification model to focus on not missing out on successful trades and will typically produce a relatively greater number of trades with High or Medium classifications) and enter into trades that are either classified as High or Medium, while watching trades classified as Very Low in order to see if they reverse course. It would also be a good idea, when using this type of strategy, to select a relatively smaller number of trades in order to have a more concentrated portfolio, so that each trade can be watched more closely.

Lastly, the two strategies presented in this section are definitely an exhaustive list of the types of strategies that could be used with the TradeMiner Neural Network Analysis Tool, and the only reason that I am providing these examples is to illustrate of a couple of different ways that the neural network model could be used.

Non-Normal Events (and other market events)

When using the neural network classification model, it is important to pay attention to both non-normal market events (a non-normal event is an uncommon event that impacts the markets in a way that reduces the likelihood of a historical trend recurring, at least for the time being) and market events, especially when one occurs after the trade entry date. A good example of a non-normal market event is the 2011 Japanese earthquake and tsunami, which had a large impact on nuclear-related stocks (especially uranium producers), because of the nuclear disaster that occurred at the Fukushima Daiichi nuclear power plant and the negative sentiment towards nuclear power generation that resulted. This type of non-normal market event will likely invalidate any ongoing historical trend that might be occurring at the time (assuming that the event doesn't have the same directional impact as the trend) and it is definitely be a good idea to take the expected impact of the event into consideration before any trading decisions are made (assuming that the trade hasn't yet been made).

A good example of an important market event to pay attention to is an earnings release (for stocks) or a crop report (for commodities) that occurs during a trade's entry and exit dates, and even though these market events could be what cause the historical trend to occur (at least most of the time), they also bring in additional uncertainty and risk if their results don't turn out as expected. For example, if a stock has a strong rally right before an upcoming earnings release, the risk associated with a bad earnings report may outweigh the potential reward from a good earnings report, and the best strategy might be to simply take your profits a little bit early (or, potentially, purchase some protection in order to hedge your position). This would have definitely been a prudent strategy to take for a Select Comfort (SCSS) trade, which had an entry date of 01-02-2013 and an exit date of 01-29-2013, because they ended up reporting pretty weak results and giving a negative future outlook (which was released after market close on the 24th of January and was only a few days before the trade exit date), and their shares ended up sinking the following day

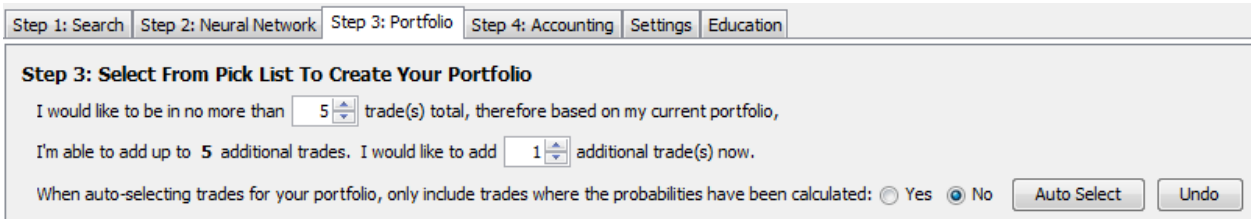


Summary of the Neural Network Analysis Tool

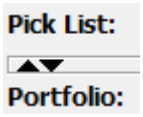
TradeMiner is a tool that identifies historical trends and patterns, and the TradeMiner neural network pattern recognition model is a classification model that identifies what successful and unsuccessful trades "look like," prior to their trade start date, and then classifies each trade as either successful or unsuccessful and whether or not the trade looks like an average trade or a greater-than-average trade.

Step 3: Portfolio

The Portfolio tab may be used to create and analyze a list of desired contracts within a customizable trading portfolio. Once trades have been added into your Pick List, you may then choose the number of active trades to be displayed, how many additional trades you may wish to add, and you may have TradeMiner automatically choose which trades out of your Pick List to be added into your Portfolio.

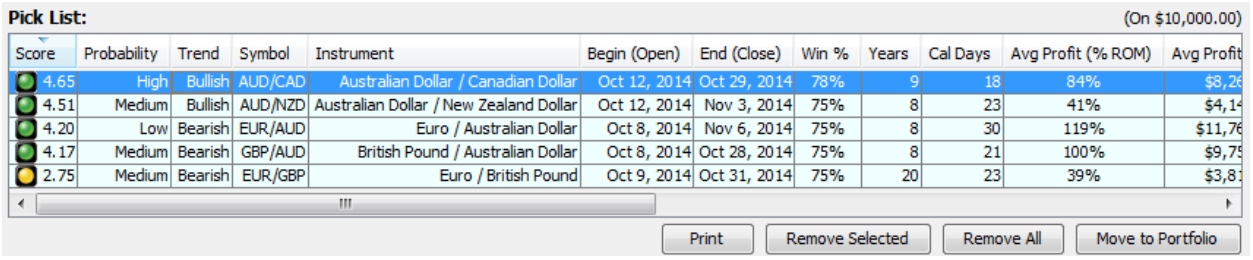

Step 1: Search
Step 2: Neural Network
Step 3: Portfolio
Step 4: Accounting
Settings
Education
Step 3: Select From Pick List To Create Your Portfolio
I would like to be in no more than 5 trade(s) total, therefore based on my current portfolio,
I'm able to add up to 5 additional trades. I would like to add 1 additional trade(s) now.
When auto-selecting trades for your portfolio, only include trades where the probabilities have been calculated: Yes No
Auto Select
Undo

You may expand or collapse your Pick List/Portfolio sections by select the black arrows which separate the two sections. Click the up arrow to expand the Portfolio, click the down arrow to expand the Pick List. These arrows appear within the follow graphic:



Pick List

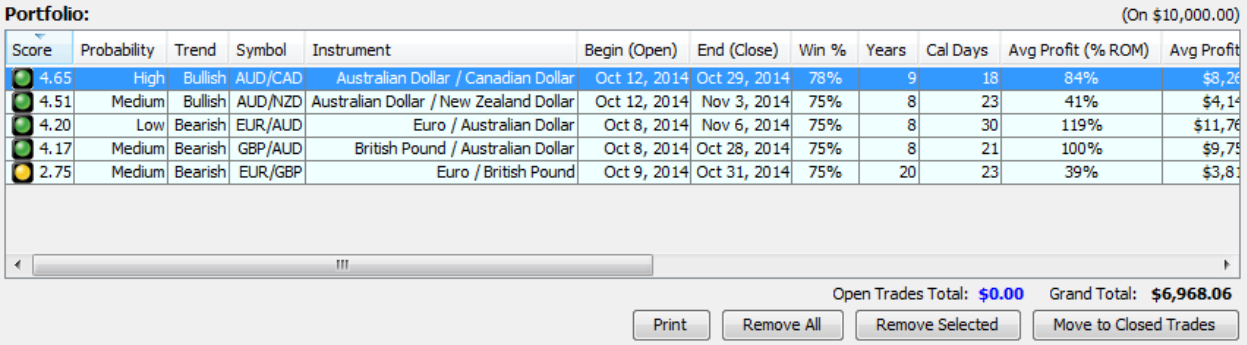
You may add trades into the Step 3 tab by selecting **Add to Pick List** from Step 2. Your Pick List will be used to determine which trades to add into your Portfolio when choosing to **Auto Select.** From this section you may choose to **Print** your Pick List, **Remove Selected** to return highlighted trades into Step 2, **Remove All** trades into Step 2, or **Move to Portfolio** all trades listed within your current Pick List.


Pick List:
(On $10,000.00)
Score
Probability
Trend
Symbol
Instrument
Begin (Open)
End (Close)
Win %
Years
Cal Days
Avg Profit (% ROM)
Avg Profit
4.65 High Bullish AUD/CAD Australian Dollar / Canadian Dollar Oct 12, 2014 Oct 29, 2014 78% 9 18 84%
4.51 Medium Bullish AUD/NZD Australian Dollar / New Zealand Dollar Oct 12, 2014 Nov 3, 2014 75% 8 23 41%
4.20 Low Bearish EUR/AUD Euro / Australian Dollar Oct 8, 2014 Nov 6, 2014 75% 8 30 119%
4.17 Medium Bearish GBP/AUD British Pound / Australian Dollar Oct 8, 2014 Oct 28, 2014 75% 8 21 100%
2.75 Medium Bearish EUR/GBP Euro / British Pound Oct 9, 2014 Oct 31, 2014 75% 20 23 39%
Print
Remove Selected
Remove All
Move to Portfolio

Portfolio

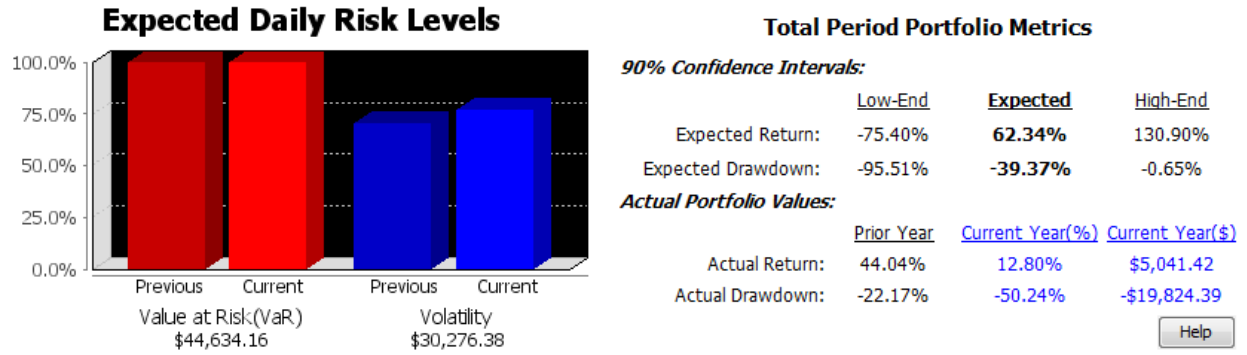
Once trades have been added into your Portfolio from your Pick List, you may analyze the current profit/loss of all open trades from the **Open Trades Total:** beneath your trades list. You may also see the combined profit of all closed and open trades from the **Grand Total.** If you would like to remove a trade from your Portfolio, select to either **Remove Selected** or **Remove All.** Removed trades will return to

your Pick List. Once you have finished analyzing trades within your Portfolio, you may move them to Step 4: Accounting by selecting **Move to Closed Trades.**


Portfolio:
(On $10,000.00)
Score | Probability | Trend | Symbol | Instrument | Begin (Open) | End (Close) | Win % | Years | Cal Days | Avg Profit (% ROM) | Avg Profit
4.65 | High | Bullish | AUD/CAD | Australian Dollar / Canadian Dollar | Oct 12, 2014 | Oct 29, 2014 | 78% | 9 | 18 | 84% | $8,26
4.51 | Medium | Bullish | AUD/NZD | Australian Dollar / New Zealand Dollar | Oct 12, 2014 | Nov 3, 2014 | 75% | 8 | 23 | 41% | $4,14
4.20 | Low | Bearish | EUR/AUD | Euro / Australian Dollar | Oct 8, 2014 | Nov 6, 2014 | 75% | 8 | 30 | 119% | $11,76
4.17 | Medium | Bearish | GBP/AUD | British Pound / Australian Dollar | Oct 8, 2014 | Oct 28, 2014 | 75% | 8 | 21 | 100% | $9,75
2.75 | Medium | Bearish | EUR/GBP | Euro / British Pound | Oct 9, 2014 | Oct 31, 2014 | 75% | 20 | 23 | 39% | $3,81
Open Trades Total: $0.00
Grand Total: $6,968.06
Print
Remove All
Remove Selected
Move to Closed Trades

Portfolio Analytics

A new technical analysis graphic appears within the Portfolio called the Portfolio Analytics. The Portfolio Analytics will display a bar graph of your **Expected Daily Risk Levels** along with your **Total Period Portfolio Metrics** as show below:



Daily Risk Levels

The daily risk levels graph includes two daily risk metrics: expected daily **Value at Risk (VaR)** and expected daily **Volatility**.

Value at Risk (VaR):

The **Value at Risk (VaR)** metric is the largest percentage decline, based on a 95% probability, that a given portfolio is likely to incur on any given day (i.e., there is a 95% probability that a given portfolio will not lose more, on a percentage basis, than its VaR value on any given day).

Example: If a portfolio has a VaR value of 10% and a current value of $100, it is 95% likely that the portfolio will not lose more than 10% (i.e., $10), on any given day.

Volatility:

The **Volatility** metric us the expected daily volatility of a given portfolio (i.e., it is the typical up and down percentage movement of the entire portfolio on any given day).

Example: If a portfolio has an expected volatility of 5% and a current value of $100, the expected daily up and down price movement is expected to be, on average, 5% of the total portfolio value (i.e., $5, up or down, on any given day).

Total Period Portfolio Metrics

The total period portfolio metrics section includes two types of values; expected confidence intervals and actual metric values. The expected confidence intervals and the actual metric values are provided for both **Portfolio Return** and **Portfolio Max Drawdown**.

Portfolio Return:

The Portfolio Return confidence interval is an estimate of the expected portfolio return that will occur over the entire portfolio period (the "expected portfolio return will fall within the interval range). The "Worst" value is the bottom of the range and the "Best" value is the top of the range, whereas the "Expected" value is simply the estimated portfolio return value.

Example: If a portfolio has an expected portfolio return of 10% (with 8% as its "worst" estimate and 12% as its "best" estimate) and a beginning value of $100, the expected range of the portfolio return, based on a 95% probability, is 8% ($8) to 12% ($12), with an expected value of 10% ($10).

Portfolio Max Drawdown (Confidence Interval):

The Max Drawdown confidence interval is an estimate of the expected maximum drawdown during the portfolio period (the "Max Drawdown" of portfolio is the maximum percentage decline that occurs during a given period) and its 95% confidence interval (I.e., there is 95% confidence that the maximum drawdown will fall within the interval range). The "Worst" value is the bottom of the range and the "Best" value is the top of the range, whereas the "Expected" value is simply the estimated max drawdown value.

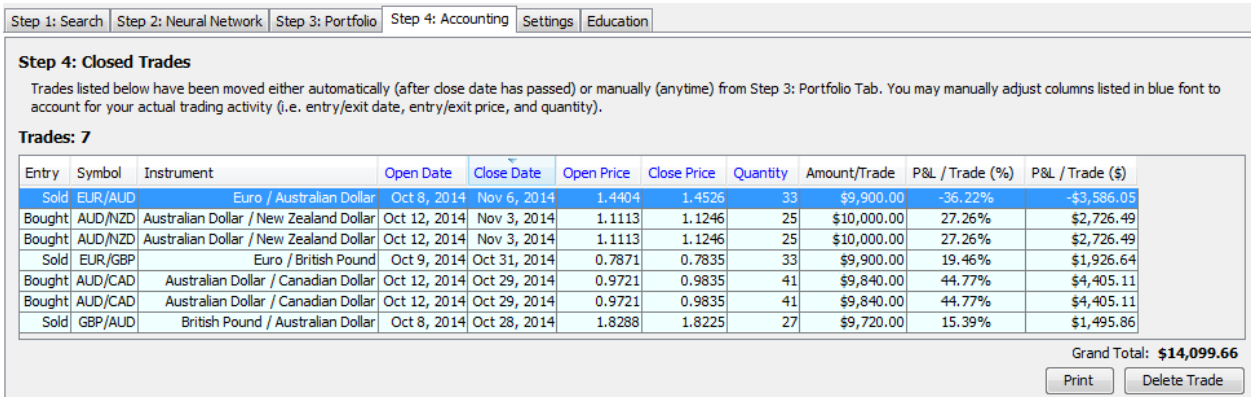
Example: If a portfolio has an expected maximum drawdown of 7% (with 8% as its "worst" estimate and 6% as its "best" estimate) and a begging value of $100, the expected range of the portfolio drawdown, based on a 95% probability, is 6% ($6) to 8% ($8), with an expected value of 7% ($7).

Portfolio Return & Portfolio Max Drawdown (Actual Values):

The values for the Portfolio Return and Portfolio Max Drawdown metrics are simply the actual historical values that occurred, for an individual portfolio, during the prior year and during the current year (current year values will be 0% if the portfolio isn't yet active, have blue text if portfolio is currently active, and have black text if the portfolio is no longer active and all trades are over).

Step 4: Accounting

Your Accounting tab may be used to store all of your closed trades. These trades may be entered using the **Move to Closed Trades** button within the Step 3 Portfolio, or automatically after closing. Your Accounting tab will display a grand total for all trades along with all profit/loss information for each trade.


Step 1: Search
Step 2: Neural Network
Step 3: Portfolio
Step 4: Accounting
Settings
Education
Step 4: Closed Trades
Trades listed below have been moved either automatically (after close date has passed) or manually (anytime) from Step 3: Portfolio Tab. You may manually adjust columns listed in blue font to account for your actual trading activity (i.e. entry/exit date, entry/exit price, and quantity).
Trades: 7
Entry | Symbol | Instrument | Open Date | Close Date | Open Price | Close Price | Quantity | Amount/Trade | P&L / Trade (%) | P&L / Trade ($)
Sold | EUR/AUD | Euro / Australian Dollar | Oct 8, 2014 | Nov 6, 2014 | 1.4404 | 1.4526 | 33 | $9,900.00 | -36.22% | -$3,586.05
Bought | AUD/NZD | Australian Dollar / New Zealand Dollar | Oct 12, 2014 | Nov 3, 2014 | 1.1113 | 1.1246 | 25 | $10,000.00 | 27.26% | $2,726.49
Bought | AUD/NZD | Australian Dollar / New Zealand Dollar | Oct 12, 2014 | Nov 3, 2014 | 1.1113 | 1.1246 | 25 | $10,000.00 | 27.26% | $2,726.49
Sold | EUR/GBP | Euro / British Pound | Oct 9, 2014 | Oct 31, 2014 | 0.7871 | 0.7835 | 33 | $9,900.00 | 19.46% | $1,926.64
Bought | AUD/CAD | Australian Dollar / Canadian Dollar | Oct 12, 2014 | Oct 29, 2014 | 0.9721 | 0.9835 | 41 | $9,840.00 | 44.77% | $4,405.11
Bought | AUD/CAD | Australian Dollar / Canadian Dollar | Oct 12, 2014 | Oct 29, 2014 | 0.9721 | 0.9835 | 41 | $9,840.00 | 44.77% | $4,405.11
Sold | GBP/AUD | British Pound / Australian Dollar | Oct 8, 2014 | Oct 28, 2014 | 1.8288 | 1.8225 | 27 | $9,720.00 | 15.39% | $1,495.86
Grand Total: $14,099.66
Print
Delete Trade

Settings Tab

In the setting tab you will find all the commodities, currency pairs, or Stock equities included in the data cube. In the settings tab you can create customized groups to search for trends in. Any symbol that has a checkmark in the "Use" column will be included when you run a search in step 1. Each of the columns in the settings tab can be clicked on to sort in ascending/descending order.

Examples of custom groups include all grain contracts in the futures version. This group would be created by sorting by the Group option and selecting all the contracts with a Grain grouping. Another Example is stocks that trade between $10-$20, Sorting by the previous close and then selecting only those stocks in the $10-$20 price range would create the custom group desired.

Once all the symbols you desire in your group are selected you can select "Save Group" and a dialogue box will appear asking you to name your group. After you have named your group you can find in the drop down any time after.

Education Tab

The TradeMiner Education center has step-by-step videos walking through each aspect of the software.

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